

# BIOS User Guide

February 2019

## Notes, cautions, and warnings

 | **NOTE:** A NOTE indicates important information that helps you make better use of your product.

 | **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 | **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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# About this guide

This guide provides information for using the Dell EMC baseboard management controller (BMC).

**⚠ CAUTION:** To avoid electrostatic discharge (ESD) damage, wear grounding wrist straps when handling this equipment.

**⚠ WARNING:** Only trained and qualified personnel can install this equipment. Read this guide before you install and power up this equipment. This equipment contains two power cords. Disconnect both power cords before servicing.

**⚠ WARNING:** This equipment contains optical transceivers, which comply with the limits of Class 1 laser radiation.



Figure 1. Class 1 laser product tag

**⚠ WARNING:** When no cable is connected, visible and invisible laser radiation may be emitted from the aperture of the optical transceiver ports. Avoid exposure to laser radiation. Do not stare into open apertures.

Topics:

- [Information symbols](#)
- [Document revision history](#)

## Information symbols

This book uses the following information symbols:

**ⓘ NOTE:** The Note icon signals important operational information.

**⚠ CAUTION:** The Caution icon signals information about situations that could result in equipment damage or loss of data.

**⚠ WARNING:** The Warning icon signals information about hardware handling that could result in injury.

**⚠ WARNING:** The ESD Warning icon requires that you take electrostatic precautions when handling the device.

## Document revision history

Table 1. Revision history

Revision	Date	Description
A00	2018-05	Initial release
A01	2018-08	Hardware flow control addition
A02	2019-02	WiFi/LTE expansion cards, BIOS 3.41.0.9-13, DIAG OS 3.41.3.81-4

## New in this release

DIAG tools new features.

### DIAG OS

Version VEP4600\_DIAG\_OS\_3.41.3.81-4

New Features:

- 1 Support for Wifi/LTE/BT diagnostics.
- 2 Support for **eeepromtool** for rNDC Carrier Card and WIFI/LTE card FRU (Field-replaceable unit).
- 3 Support for MC1/MC2 BT firmware update.
- 4 Support for LED of WiFi. Can turn off/on using **iwconfig wlan0 txpower** off/on.

### DIAG Tools

Version VEP4600\_DIAG\_OS\_3.41.3.81-15

### CPLD

Please see Current Released Versions in the Important Information section in Drivers and Download on <https://www.dell.com/support>.

# BIOS

**⚠ WARNING:** Changing the BIOS may be detrimental to platform operations if the changes are not fully understood. Before you change the BIOS, if you have questions, contact your Dell EMC technical representative.

For the most current BIOS update information, see the *VEP4600 Release Notes*.

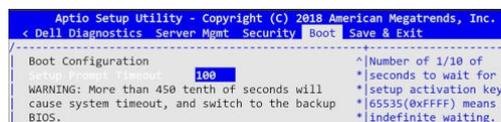
Topics:

- BIOS setup
- Console redirection
- Hardware flow control
- Super IO configuration
- Boot order
- Server management
- Option ROM dispatch policy
- SR-IOV support
- USB 3.0
- PXE and HTTP boot support
- Network interface configuration
- Advanced power management
- Trusted computing
- Embedded DIAGS

## BIOS setup

To enter the BIOS setup, press the **delete** key during the BIOS boot up.

By default, to enter the BIOS setup, you have three seconds to press the **delete** key during the BIOS boot up. To increase the time allowed, from the **BIOS setup** screen, select the **Boot** tab, then change the **Setup Prompt Timeout** number. The maximum prompt timeout is 10 seconds.



**Figure 2. Setup prompt timeout**

The **Main** screen displays the BIOS and platform details such as the processor model, amount of memory, and so forth. Use the **Main** tab to set the date and time, which is saved to the real time clock (RTC).

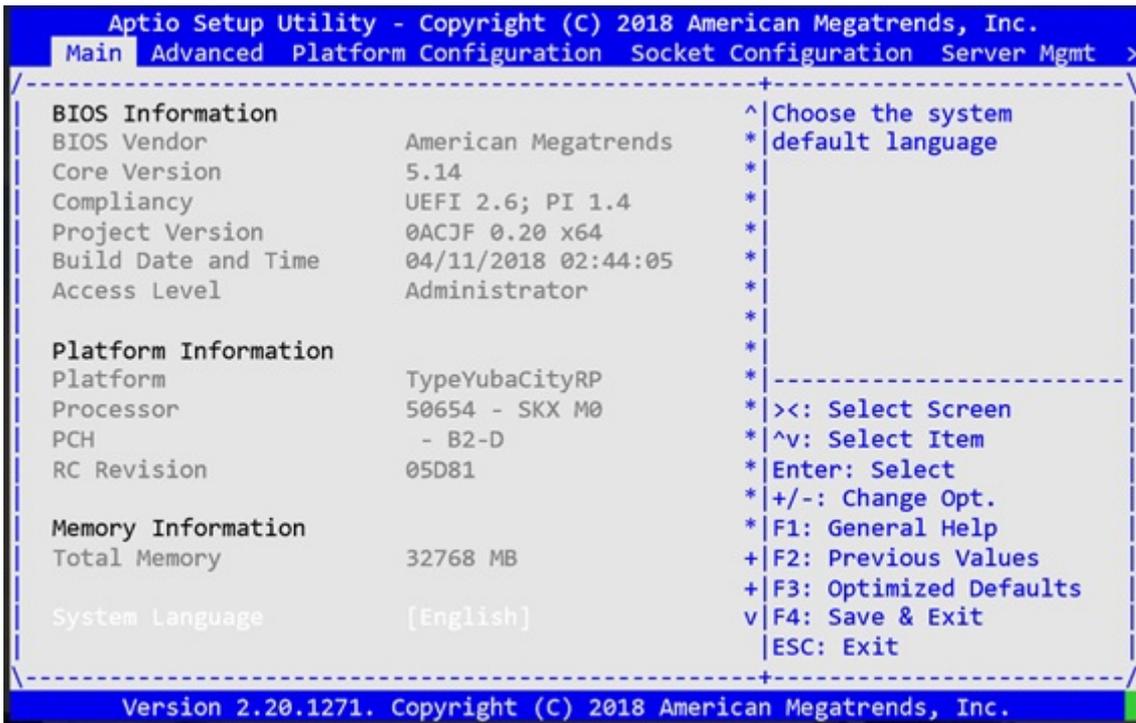


Figure 3. BIOS setup

## Console redirection

On the VEP4600, all output is through COM0, which is the console redirection default setting. The BIOS provides options to override the COM0 port default settings, including speed, parity setting, and so forth.

Access the COM0 settings from the **BIOS setup** screen, select the **Advanced** tab, then select **Serial Port Console Redirection**.

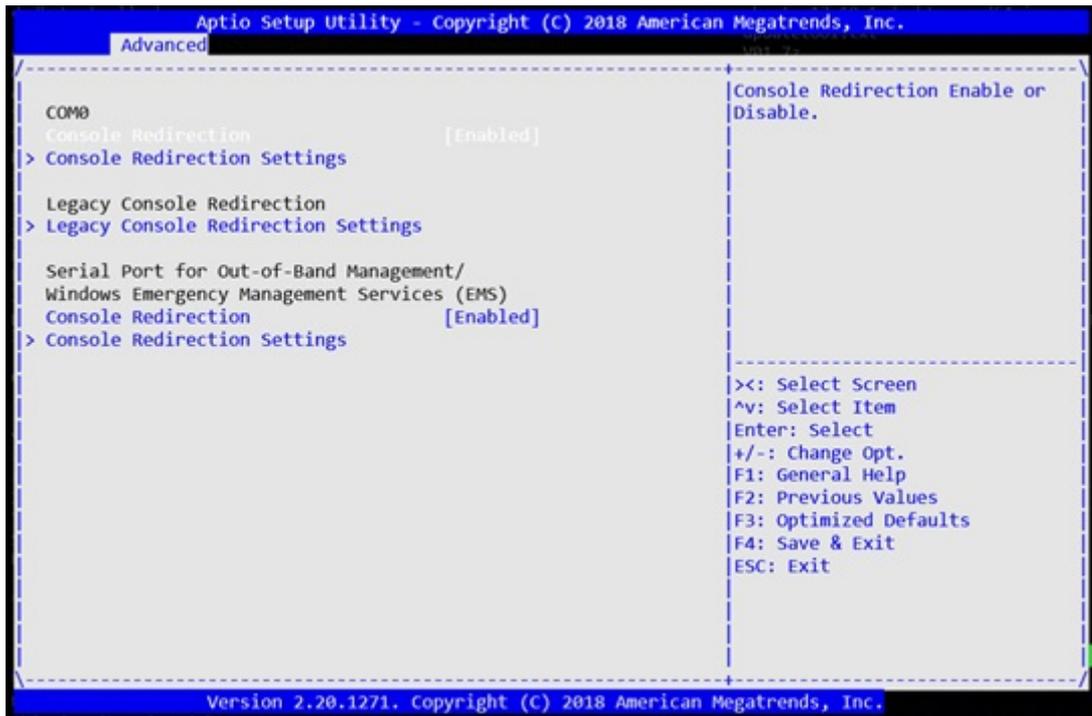


Figure 4. Console redirection

## Hardware flow control

Hardware flow control is not enabled on the console port by default.

Follow the steps below in BIOS settings to enable the hardware flow control for the console port.

- 1 Select the **Boot** menu tab. Boot into the BIOS settings using the up and down arrow keys.

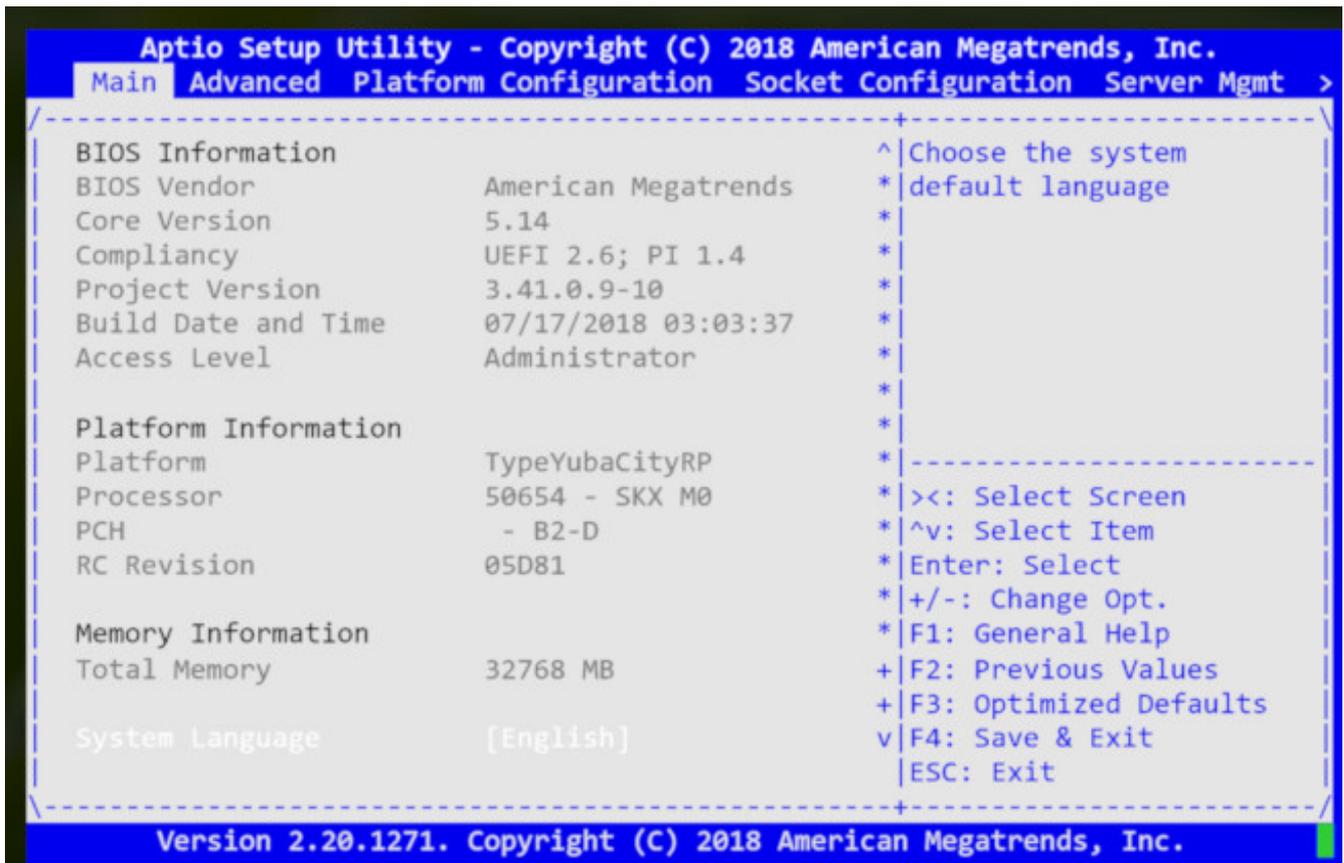


Figure 5. BIOS main screen

2. Select **Advanced** then **COM0 (Console Redirection Settings)** and **Hardware RTS/CTS** in the Flow Control popup menu.

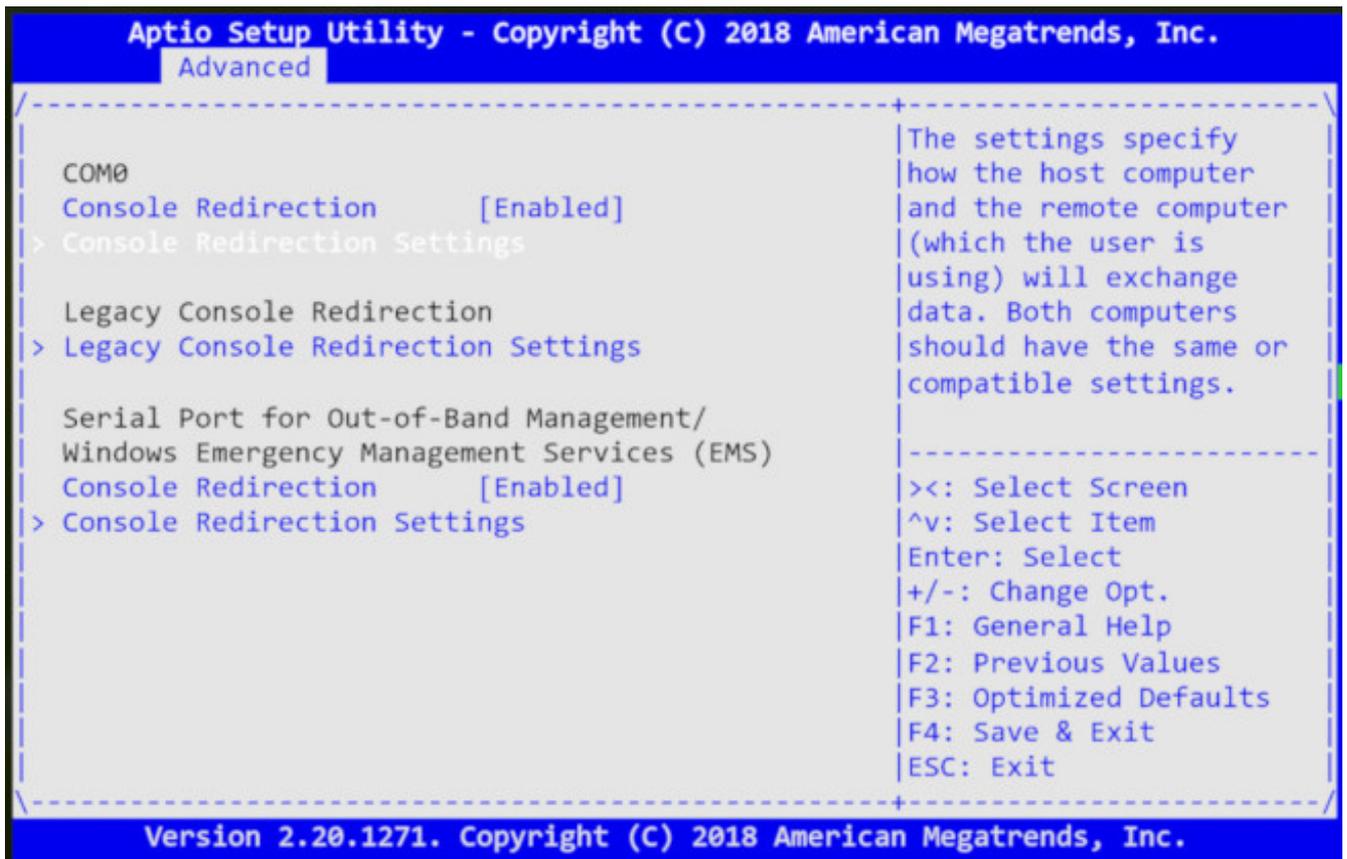


Figure 6. Advanced tab

**Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.**

Advanced

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COM0		Flow control can
Console Redirection Settings		prevent data loss from
		buffer overflow. When
Terminal Type	[VT100+]	sending data, if the
Bits per second	[115200]	receiving buffers are
Data Bits	[8]	full, a 'stop' signal
Parity	[None]	can be sent to stop the
Stop Bits	[1]	data flow. Once the
Flow Control	[None]	
VT-UTF8 Combo Key	[Enabled]	
Support		-----
Recorder Mode	[Disabled]	><: Select Screen
Resolution 100x31	[Disabled]	^v: Select Item
Putty KeyPad	[VT100]	Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

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**Version 2.20.1271. Copyright (C) 2018 American Megatrends, Inc.**

Figure 7. COM0 (Console Redirection Settings)

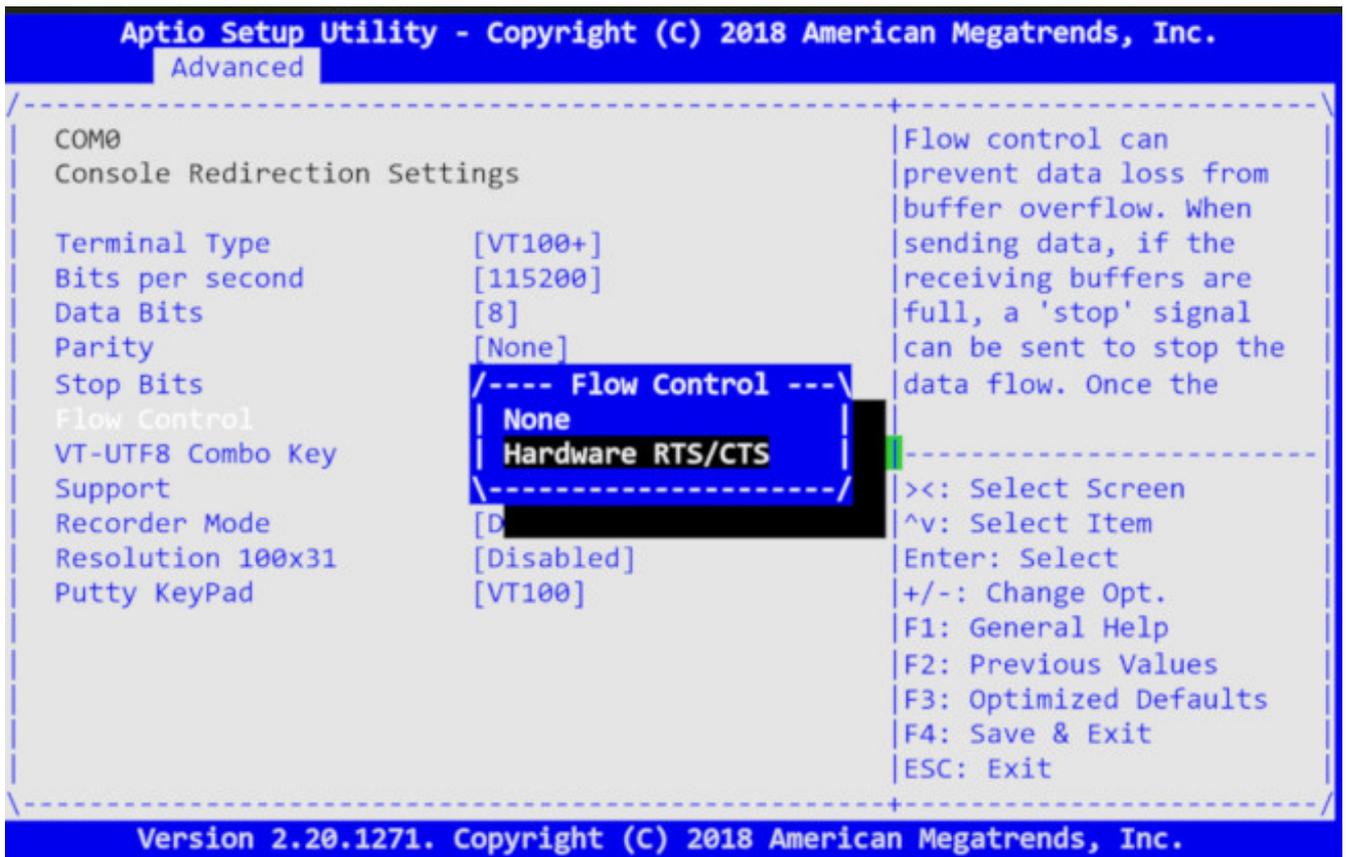


Figure 8. Hardware RTS/CTS

- 3 Press **F4** to save and exit BIOS.

## Super IO configuration

The VEP4600 only has the serial port on the Super I/O (SIO) chip. The chip settings are preconfigured and normally do not need changing.

However, you can use the BIOS to change the Super I/O chip settings, such as the I/O Base, interrupt request line (IRQ), and direct memory access (DMA) channel. To access these settings, from the **BIOS setup** screen, select the **Advanced** tab, then select **SIO Configuration**.

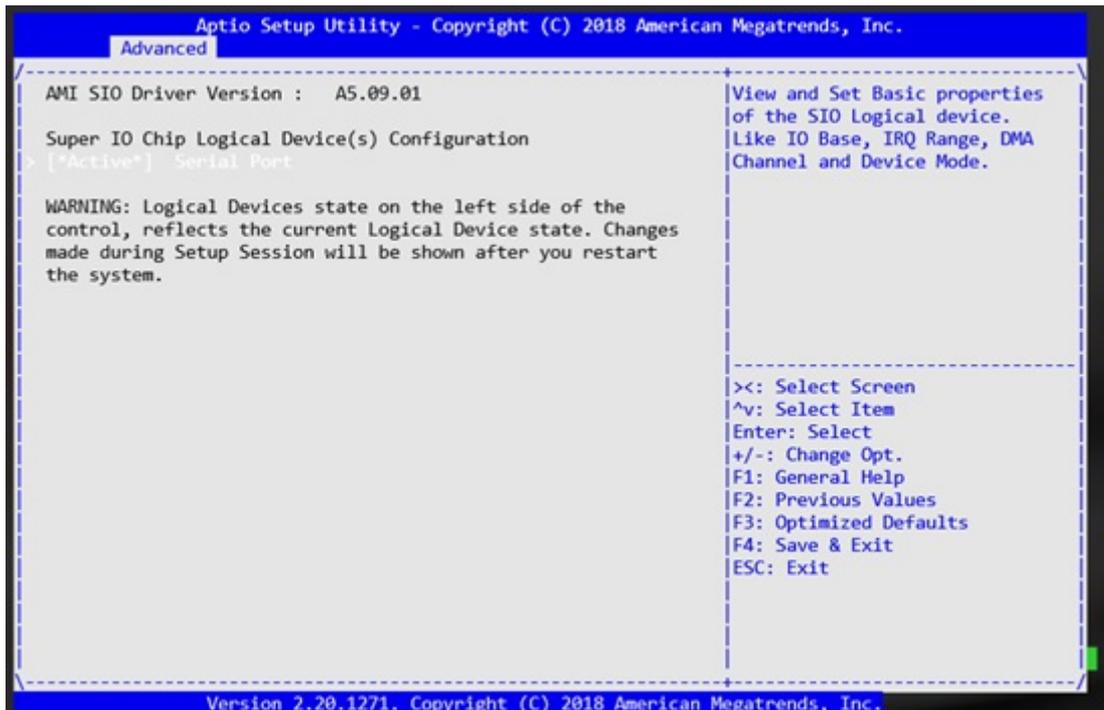


Figure 9. Super I/O configuration

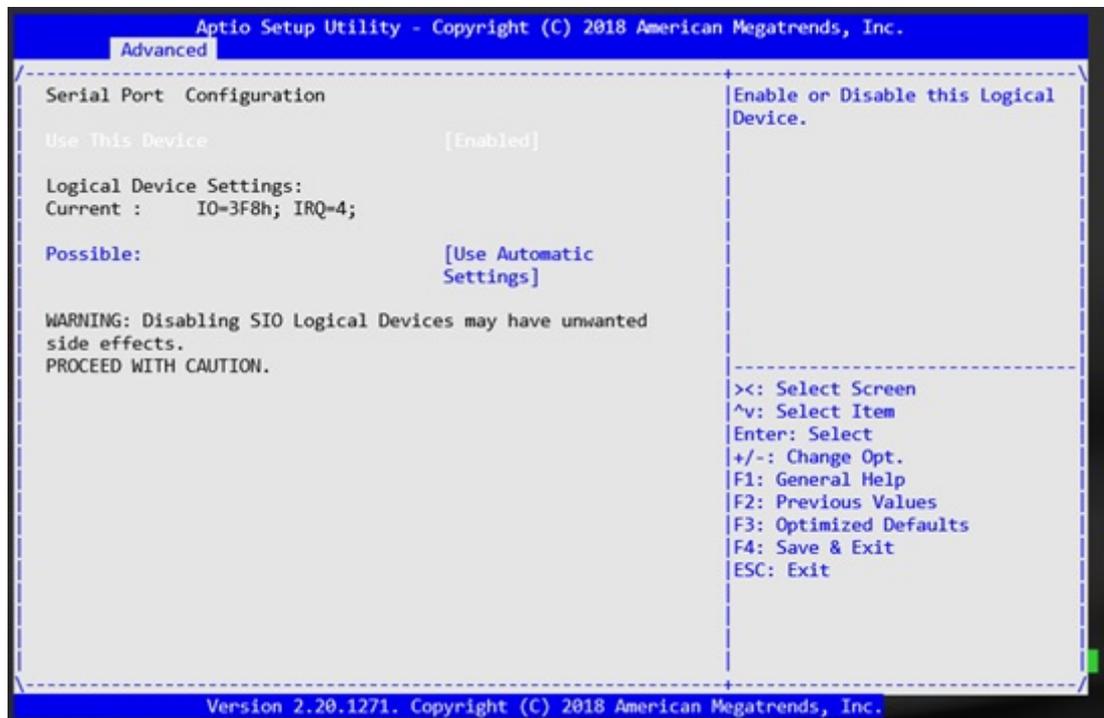


Figure 10. Super IO configuration

# Boot order

The BIOS looks for a bootable image in the Boot order setting order list. The BIOS then loads and boots the image. To access the boot order setting, from the **BIOS setup** screen, select the **Boot** tab, then select **Boot Option Priorities**.

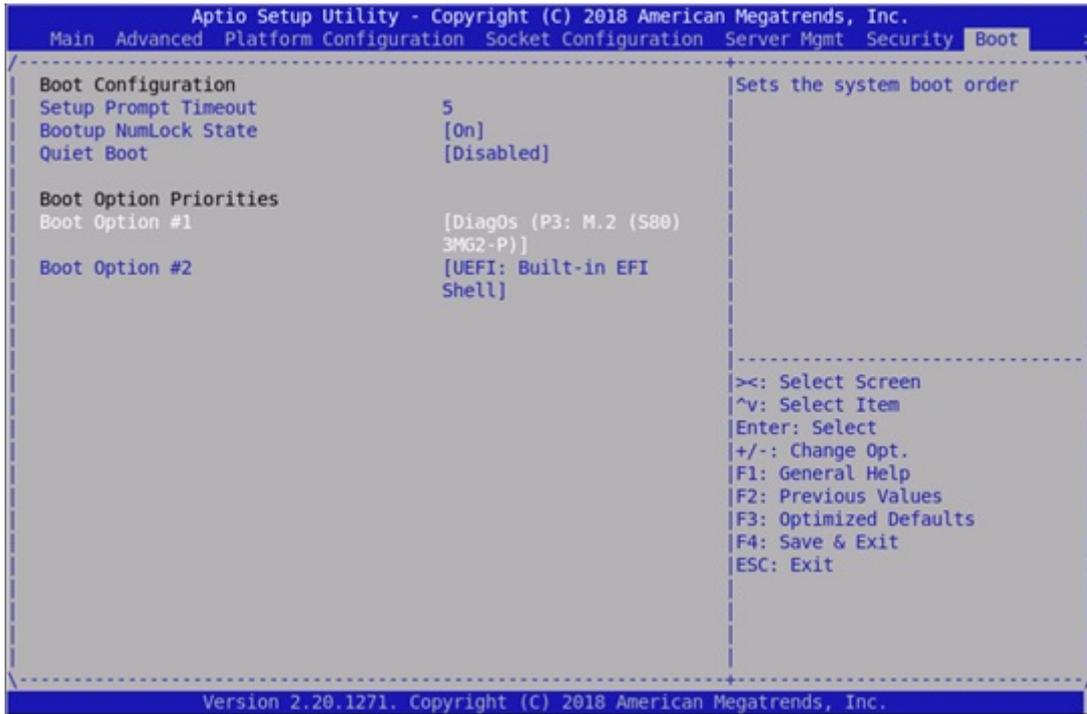


Figure 11. Boot order

# Server management

VEP4600 has an on-board baseboard management controller (BMC) to monitor system health. During Boot up, the BIOS communicates with the BMC and exchanges messages with the BMC to log events, get BMC self-test results, and configure BMC network parameters. To configure BMC to use Static IP or dynamic host configuration protocol (DHCP), use the BIOS. To access BMC settings, from the **BIOS setup** screen, select the **Server Mgmt** tab, then **BMC Network Configuration**.

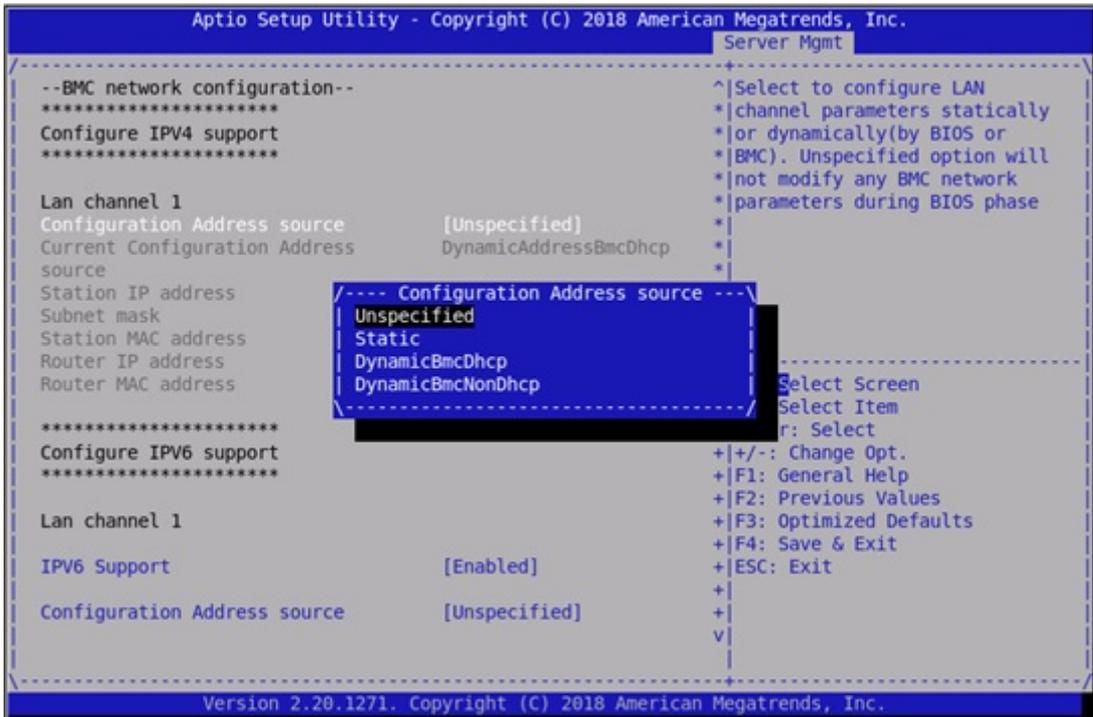


Figure 12. Server management

After an event, the BIOS logs a message to the BMC. The BMC stores these messages in nonvolatile storage. Apart from the BIOS, health monitoring software and system software also logs messages to the BMC system event log (SEL). View these messages from the **BIOS setup** screen, select the **Server Mgmt** tab, then select **View System Event Log**.

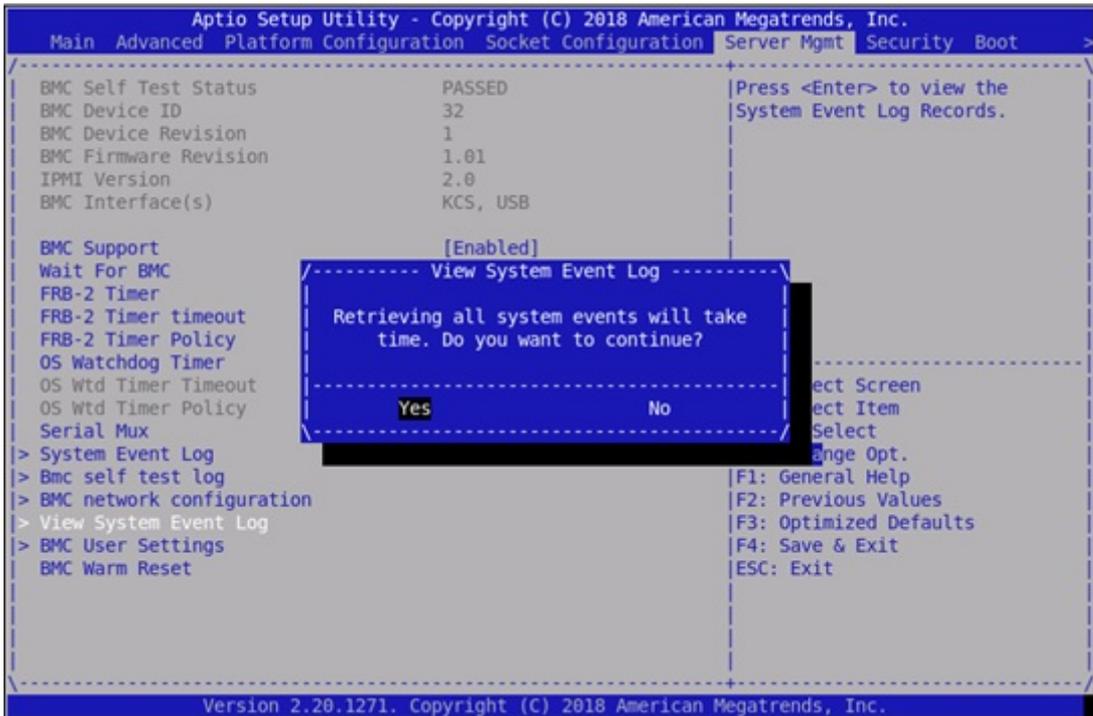


Figure 13. View system event logs

You can add, delete, access, or modify user rights. Manage the BMC user account from the **BIOS setup** screen, select the **Server Mgmt** tab, then select **BMC User Settings**.

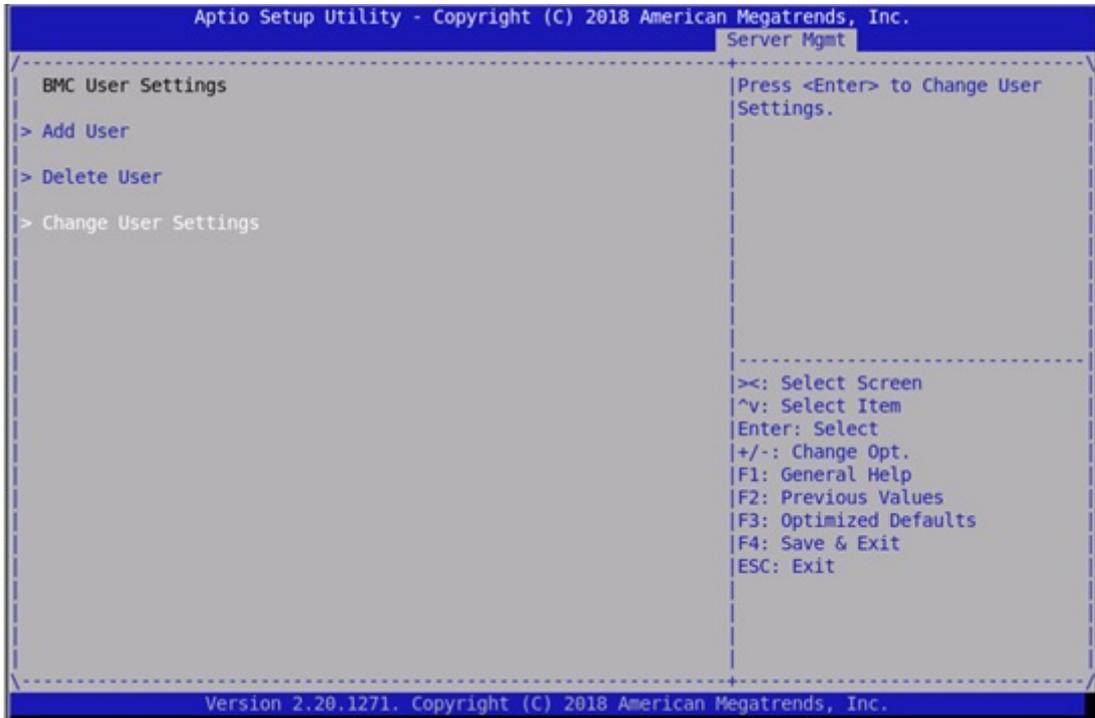


Figure 14. BMC user settings

## Option ROM dispatch policy

Option read-only memory (ROMs) contain firmware that the BIOS executes. The values listed on this screen and in the **Compatibility Support Module** screen use default values when the **Restore if Failure** setting is **true** and the BIOS fails to boot up.

**NOTE:** Changing the *option ROM* settings may effect the BIOS boot up. Dell EMC recommends keeping the default value of *Restore if Failure* equals *true*.

Access the option ROM dispatch policy screen from the **BIOS setup** screen, select the **Advanced** tab, then select **Option ROM Dispatch Policy**.



Figure 15. Option ROM dispatch policy

## SR-IOV support

If VEP4600 uses Virtualization Technologies, you must enable the single root input/output virtualization (SR-IOV) **SR-IOV support** option. This option is disabled by default.

Access this option from the **BIOS setup** screen, select the **Advanced** tab, then select **PCI Subsystem Settings**. If a device supports virtual functions, you must enable **SR-IOV support** in the BIOS.

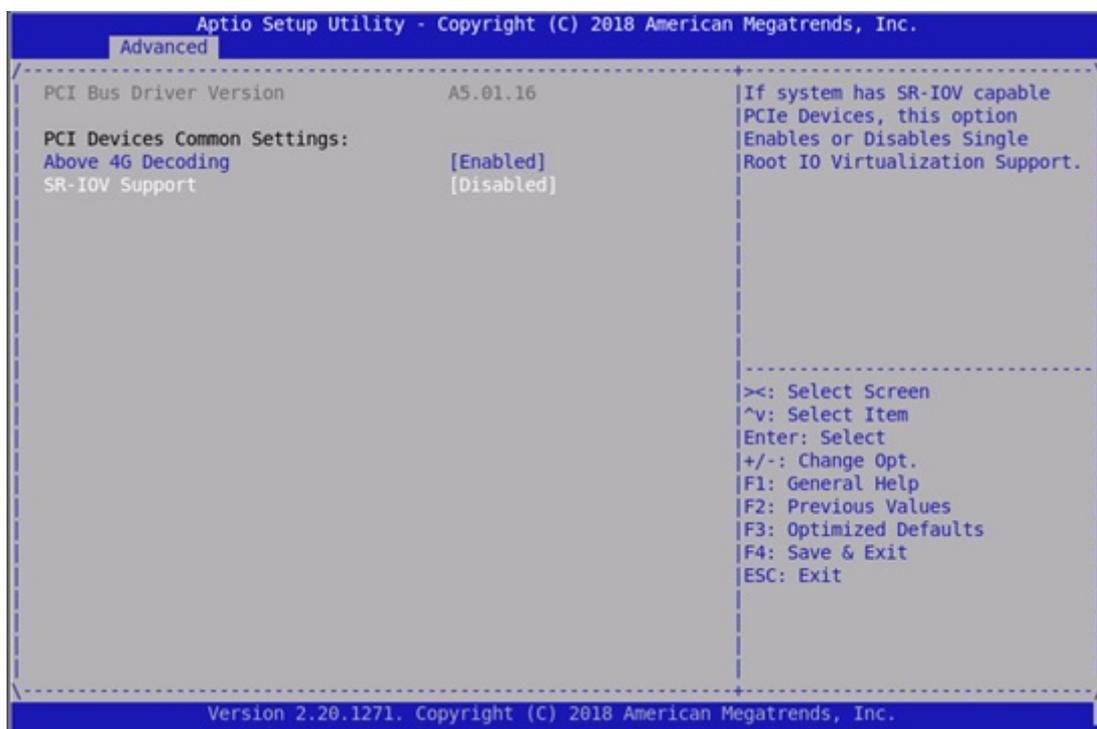


Figure 16. SR-IOV support

## USB 3.0

To support universal serial bus (USB) 3.0 in operating systems, set the extensible host controller interface (xHCI) **XHCI Hand-off** option to **enabled**. Access this setting from the **BIOS setup** screen, select the **Advanced** tab, then select **USB Configuration**.

If the BIOS must support USB 2.0 devices—legacy USB devices—leave **Legacy USB Support** set to **enabled**, shown below.

Because the box is connected using the universal asynchronous receiver-transmitter (UART) console, traditional keyboard or mouse are not connected to the USB ports.

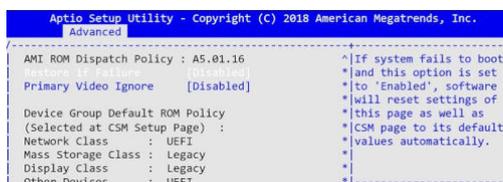


Figure 17. USB 3.0 option

## PXE and HTTP boot support

VEP4600 allows the platform to boot an operating system using pseudoxanthoma elasticum (PXE) boot. To enable PXE boot, set the **Network Stack** option to **enabled**. Access this setting from the **BIOS setup** screen, select the **Advanced** tab, then select **Network Stack**.

The BIOS also supports hypertext transfer protocol (HTTP) boot. Use both HTTP and PXE boot over IPv4 or IPv6.

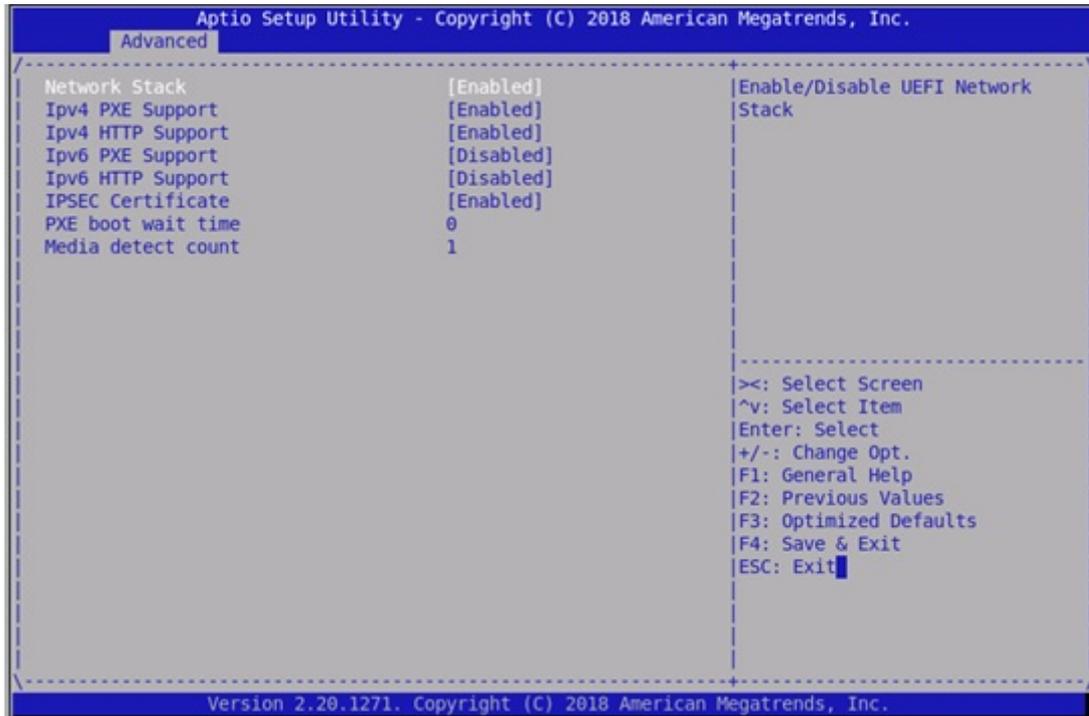


Figure 18. PXE and HTTP boot support

## Network interface configuration

VEP4600 has two 10GbE small form-factor pluggable plus (SFP+) ports, four Gigabit ports, and one Gigabit management port.

The BIOS uses these ports for PXE boot. You can configure the **wake on LAN** setting. You can also configure the one Gigabit port to auto configure or set to a specific speed. Access these settings from the **BIOS setup** screen, select the **Advanced** tab, then select the **Intel(R) I350 Gigabit Network Connection**, **Intel(R) I210 Gigabit Network Connection**, or **Intel(R) Ethernet Connection X722 for 10GbE SFP+** settings.

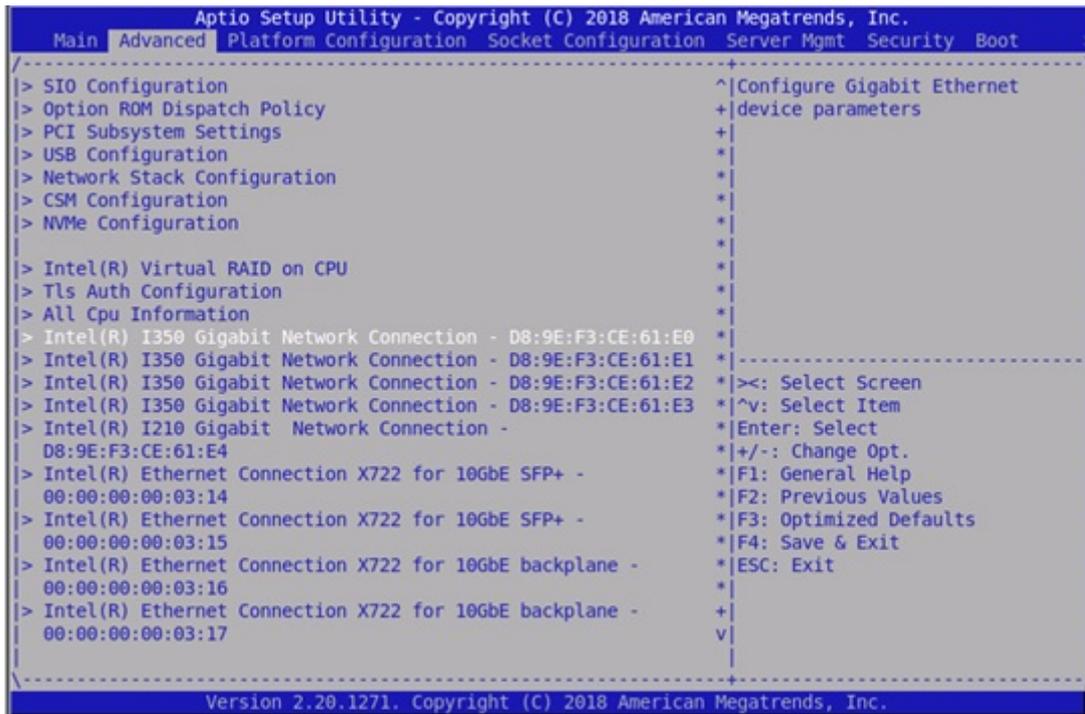


Figure 19. Network interface options

## Advanced power management

Access the settings for power management from the **BIOS setup** screen, then select the **Socket Configuration** tab. On the **Advanced Power Management Configuration** screen, select **Memory Power & Thermal Configuration**.

By default, **SpeedStep(P states)** and **Autonomous Core C-State** are disabled.

The **Software controlled T-States** option is also disabled by default.

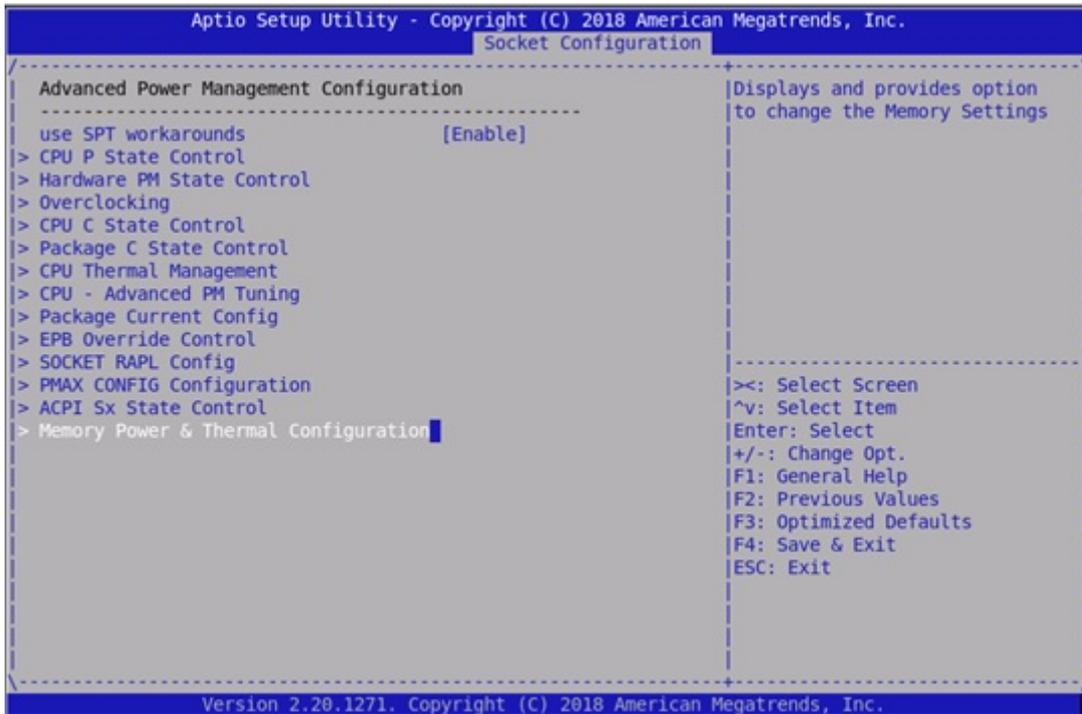


Figure 20. Advanced power management options

## Trusted computing

The BIOS provides options to enable or disable trusted platform module (TPM) security. BIOS has two provision coverage ratio (PCR) banks and provides options to select **SHA-1** or **SHA256** for these banks. Access the TPM settings from the **BIOS setup** screen, then select the **Advanced** tab, then select **Trusted Computing BIOS settings**.

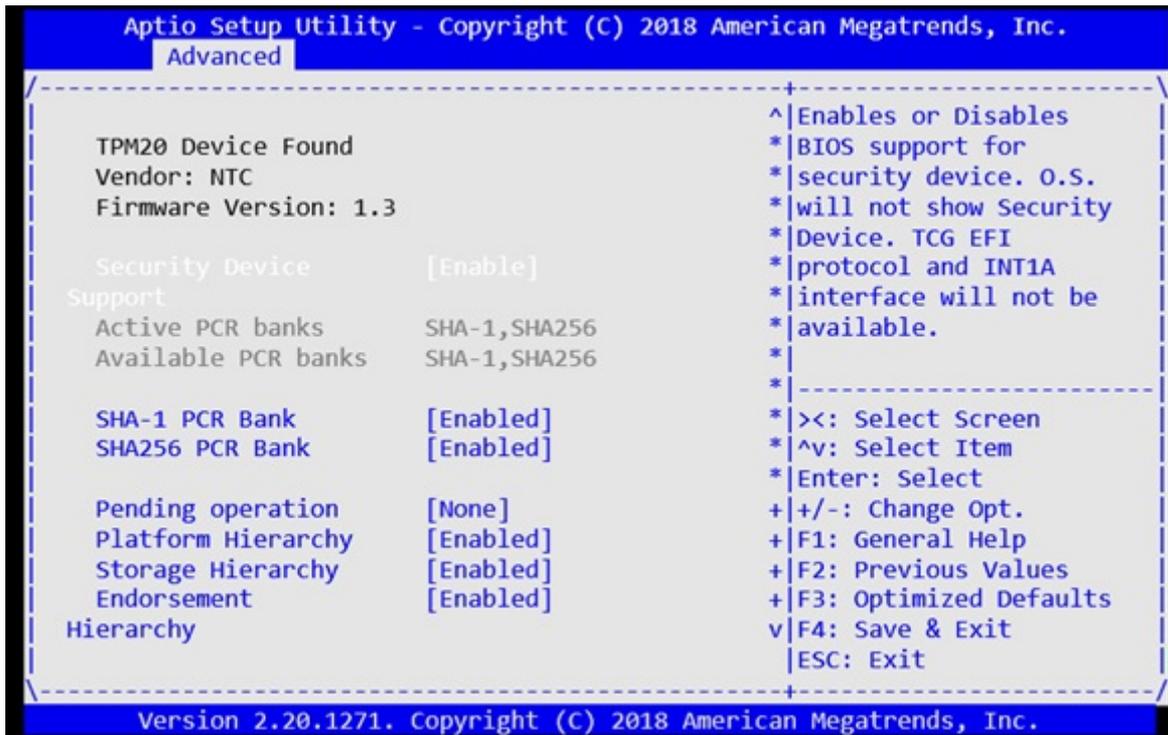


Figure 21. Trusted computing options

## Embedded DIAGS

Embedded DIAGS are available in BIOS 3.41.0.9-13, DIAG\_OS\_3.41.3.81-4 release.

Embedded DIAGS in the BIOS validates and verifies all the system's components are operating nominally.

System diagnostics include:

- 1 PSU
- 2 Fan
- 3 I2C
- 4 RTC/CMOS
- 5 PCI
- 6 DIMM
- 7 IPMI
- 8 Storage
- 9 Critical Device
- 10 Temperature

**NOTE:**

See uCPE Networking DIAG OS Guide for details at <https://www.dell.com/support>.

## Dell EMC support

The Dell EMC support site provides documents and tools to help you effectively use Dell EMC equipment and mitigate network outages. Through the support site you can obtain technical information, access software upgrades and patches, download available management software, and manage your open cases. The Dell EMC support site provides integrated, secure access to these services.

To access the Dell EMC support site, go to [www.dell.com/support/](http://www.dell.com/support/). To display information in your language, scroll down to the bottom of the web page and select your country from the drop-down menu.

- To obtain product-specific information, enter the 7-character service tag, known as a luggage tag, or 11-digit express service code of your switch and click **Submit**.
- To view the platform service tag or express service code, pull out the luggage tag on the upper-right side of the platform or retrieve it remotely using the `ipmitool -H <bmc ip address> -I lanplus -U <user name> -P <password> fru` command
- To receive more technical support, click **Contact Us**. On the Contact Information web page, click **Technical Support**.

To access switch documentation, go to [www.dell.com/manuals/](http://www.dell.com/manuals/).

To search for drivers and downloads, go to [www.dell.com/drivers/](http://www.dell.com/drivers/).

To participate in Dell EMC community blogs and forums, go to [www.dell.com/community](http://www.dell.com/community).